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Regional Forester's 1957 REPORT

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U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
CALIFORNIA REGION

"PATRIARCHS" OF THE PLANT WORLD

Above - Largest Bristle cone, 37 ft. circumference at base.

Right - Wind, sand and ice eroded on windward side. Living tissue persists on leeward side of tree.

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Front Cover: --- Portrait of a picturesque and ancient Bristlecone pine found near the summit of the White Mountains, Inyo National Forest, California. This tree, now dead, has survived the onslaught of the elements for more than 40 centuries. Its age, determined by Dr. Edmund Schulman of the University of Arizona from growth rings, establishes this, and its living contemporaries in the area, as the oldest plant life known. These Bristlecone pines surpass the oldest known giant Sequoia by at least 1000 years. The tree rings which document age also record the cyclic climatic changes since the building of the Pyramids, about 2000 B. C.

The photogenic appeal of these patriarchs is shown in the above photographs. The extreme age reached by many of these trees became known only recently through the efforts of Dr. Schulman. Special protective measures taken by the Forest Service assures the preservation of this unique alpine forest area.

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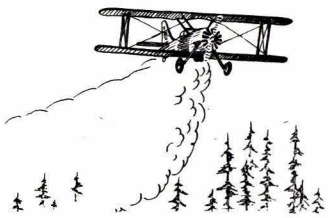
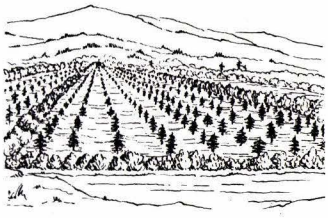
Important Events of the Year

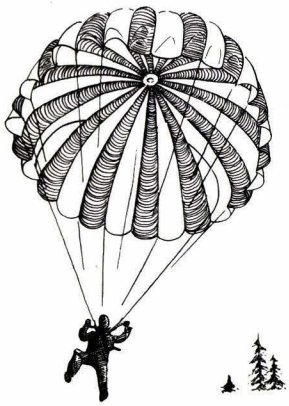


Bristlecone Pines --- the oldest of living things documented and steps taken to preserve them.



Development of Air Tankers and small Helicopters as effective forest fire control tools.

Reforested 8000 acres denuded by 1955 fires. This was a record planting year on the National Forests.

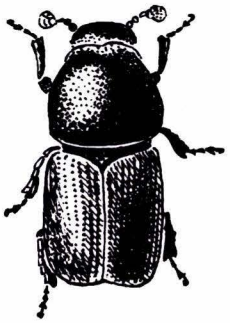


"Operation Outdoors"--- A good start made in rehabilitation and development of recreation facilities on the National Forests.

First smokejumper base with 26 jumpers established this year in California.

Protective measures intensified to control insect and disease losses.

Fire prevention education intensified in cooperation with the State Division of Forestry.



Systematic improvement of range forage to benefit both domestic livestock and wildlife.

AGRICULTURE—FOREST SERVICE—SAN FRANCISCO

This report deals primarily with Forest Service activities and accomplishments involved in administration of the 18 national forests in California.

The work and responsibilities of the Forest Service is not confined to administration of the Forests alone. Two other important phases of our work are Cooperative work with other public and private agencies, and Research, both of which are directed toward improving forest wildland management, regardless of ownership.

Forest and wildland research in California is carried on by the California Forest and Range Experiment Station at Berkeley, a branch of the Forest Service.

MANAGEMENT OF THE NATIONAL FORESTS

The 18 national forests in California are managed to best serve the needs of all the people of the State and Nation. The rapidly expanding population in California creates greater demands for the resources and services of the Forests. Meeting this impact requires more intensive management procedures. A few of the diverse management activities involved in protecting, improving, and perpetuating the resources of the Forests are set forth in this report.

Soil and water being the basic resources on which continued production of replaceable resources and services depends are appropriately considered first in multiple-use management of the public forests.

SOIL RESOURCE

Classification of mountain soils is being used more and more as a basis for determining productive potentials and the best use that can be made of them. Soil types vary widely in their resistance to erosion and the kind of plant life they can support. Holding soil on steep slopes is of major importance in all management decisions. Road construction and logging is modified where necessary on the national forests to retain maximum practicable soil stability. Reseeding and planting of areas denuded by fire is based on the type of soil and the kinds of plants which are best adapted to the area. The same holds true in cases of conversion of plant cover to one which is of greater use or value.

Soil not only provides the anchorage and minerals to sustain plants, it also serves as a regulating and purifying medium for its companion resource---water.

WATER RESOURCE

Half the surface run-off water of the State originates on national forest watersheds, much of it falling as snow. Too little is yet known about how the snowpack may be altered to yield the most water at the season of need. Snowpack research is now under way at two locations in Northern California forests to measure and devise means of tailoring timber harvesting and manipulating vegetation to return greater water yields from forested watersheds.

At the San Dimas Experimental Forest in Southern California, where water is so critical, similar watershed research is under way. Here small watersheds have been calibrated over a period of more than twenty years. Water yield under present conditions of vegetative cover is known. Plans are to remove vegetation on portions of two small watersheds. Several treatments of varying intensities of removal and control of regrowth will be carried on for a sufficient period of years to measure effect on water flows. This information will serve as a yardstick for evaluating effects of plant cover on other watersheds. This project is being planned and will be carried out in cooperation with the California Forest and Range Experiment Station.

The close proximity of highly developed urban areas in Southern California to the steep watersheds of the national forests constitutes a critical flood menace when these brush covered slopes are laid bare by wildfire. Seven fire areas of the Southern Forests covering a total area of 38,000 acres were sown to grasses and other fast growing plants following the fires of this year. This emergency treatment to quickly "tack down" the soil and reduce debris flows was accomplished by use of planes and helicopters.

Added protection from debris flows off fire crippled watersheds has been provided by construction of debris catchment reservoirs by local Flood Control Districts with Forest Service cooperation. Costly debris removal to maintain effectiveness prompted development of a series of channel check dam structures to hold mud and debris out of these catchment reservoirs. 1957 marked the completion of the first such upstream channel stabilization project on a tributary of the Los Angeles River. This was a cooperative cost sharing project with the Los Angeles County Flood Control District.

Nine rock-filled concrete crib dams varying in height from 8 feet to 16 feet above stream bed provided the stabilization required for 4,300 feet of channel. Late fall rains of moderate intensity provided the first test for the structures. They functioned as planned, holding back debris from an area burned in August on the upper portion of the watershed.

TIMBER RESOURCE

Timber harvest from the national forests continued at a high level but fell short of the cutting rate of last year due to a softening of the lumber market. The cut for FY ending June 30, 1957 was 969,080,000 board feet valued at $17,477,545. Insect infested and salvage timber accounted for 38,000,000 feet of the total cut.

Protection, regeneration and improved management activities moved at an increased tempo. Pest control, seeding and planting, cultural improvement of stands, development of management plans and improved supervision of sales are all indicative of intensified timber management practices.

Pest Control - diseases:

Elimination of currants and gooseberries to control blister rust, which kills sugar pine and other white pines covered 36,000 acres in the State. State and privately owned lands treated made up 40 percent of this total. The control work, which is under the technical supervision of the Forest Service, was accomplished largely by private contractors. The average cost of treatment was $8.34 per acre.

A systematic search this year resulted in the discovery of 43 rust resistant sugar pine trees in Siskiyou County. These will be used as source material for the ultimate production of rust resistant planting stock. The hereditary factors of resistance in these individual trees will be transferred by grafting and vegetative propagation as the first step in development of a new strain of rust resistant sugar pines.

Pest Control - insects:

A state-wide system of aerial survey and field reporting on timber killing insects provides necessary information for attacking outbreaks while they are small. This year there were 23 control projects, which is more than usual. Losses due to western pine beetles show a marked increase, over the State as a whole.

Direct treatment of infested trees is used only when it is impractical to dispose of infested trees through sale procedure. The sanitation-salvage method of control is equally effective and more efficient. It removes and destroys the insects. More important, the undamaged wood in the larger trees is used. Sale of this material to commercial operators results in a cash return instead of an expense to the public.

Pest Control - insects: (cont'd)

The extensive fires of 1955 produced a bumper crop of bark beetles with epidemic potentials this year. The most serious area was the McGee burn on the Sequoia National Forest. A "crash" control program was initiated in August. With the excellent cooperation of the lumber industry three and a half million feet of insect infested timber was sold and removed in a period of about six weeks. 500 trees too small for lumber were felled and chemically treated to kill the beetles. The National Park Service and State Division of Forestry carried on control operations at the same time on surrounding Park, State, and private lands.

Aerial spraying of 10,000 acres of white fir forests on the Stanislaus last season proved effective in controlling an aggressive defoliating pest. No egg masses of the Douglas fir tussock moth were found this year in the treated area.

800 acres of pine plantations on the slopes of Mt. Shasta were aerially sprayed with DDT at a cost of $1.50 per acre. Here a reproduction weevil and sawfly defoliator teemed up in an aggressive attack on the 20 year old plantation. The spray treatment successfully controlled these insects.

Aerial spraying of a brush field plantation. Small trees are successfully competing with brush. As trees grow to overtop the brush their shade will kill the brush.

Pest Control - animals:

Porcupine damage to young timber stands is a problem on eight national forests in California. The Fish and Wildlife Service cooperating with the Modoc Forest directed a 5 man crew in reducing the population of porcupines on 20,000 acres. Conclusions were that larger areas and better methods must be employed for effective control.

Control of mice and other seed eating rodents is necessary to secure regeneration from natural seed fall or seed spot planting. 6,300 acres were baited on 5 forests to save natural seed fall. Aerial application of rodent control bait costs no more than by hand and is much easier. Baiting costs were fifty cents per acre for each application. Three baitings at three month intervals from August to April seem to be required for success.

Forest Regeneration

Nearly 8,000 acres were planted this year compared with 4,000 acres last year. The major portion of this planting was on the 1955 burn areas of the Klamath and Sequoia Forests.

The Mt. Shasta and Oakdale tree nurseries produced 5 million trees this year. The Oakdale site is being terminated in favor of a new nursery site at Placerville. Production of hybrid forest trees having superior qualities of growth and resistance to diseases will be one objective of the new nursery. The results of genetic research at the Institute of Forest Genetics nearby will be applied to produce improved planting stock. The new nursery will also supplement the output of the Mt. Shasta nursery, and will specialize in growing seedlings for early season plantings.

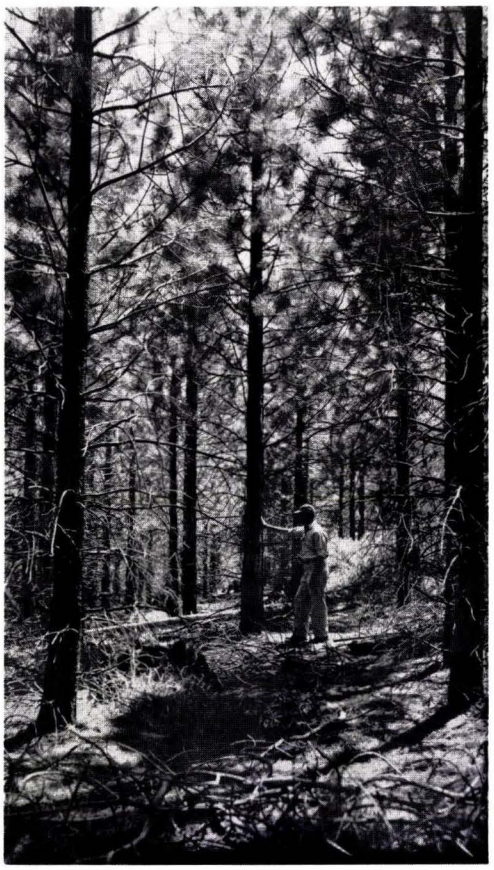
Plans and selection of sites for reforesting 200,000 acres of the best timber growing lands in the Forests are now being prepared. Such advance planning is necessary as a preliminary to increasing nursery production ahead of scheduled plantings.

Crew Planting Seedling Trees
on Haystack Burn-Klamath Forest

Timber Stand Improvement

Successful pine plantations in California are now reaching pole-size and require thinning and pruning to increase rates of growth and quality of lumber being grown.

The illustration below of a successful plantation shows the kind of forest stands requiring intensive cultural treatment.



Increasing demands on the timber resources of the forests dictates a speed-up in preparation of detailed plans for management of the resource. Such management plans were completed on 313,600 acres during the year. Inventory work of mapping and cruising was completed on more than 1,000,000 acres. The present objective is to complete detailed operational plans for all national forest working circles by 1963, funds and man-power permitting.

RECREATION RESOURCE

Operation Outdoors - a 5 year program of the Forest Service designed to double camping facilities and improvements got under way beginning July 1, 1957. Funds made available under this program, although somewhat less than planned, made it possible to rebuild 500 family camp units and construct 400 new units. Detailed lay-out plans were completed during the year for 85 new campground and picnic areas. When constructed, 3,450 new family units will be added to the 10,500 now existing.

New type sanitary facility constructed under Operation Outdoors Program. Concrete slab construction used for permanency and ease of maintenance.

LANDS

Early this year an exchange of lands with the Army adjacent to the Hunter-Liggett reservation resulted in the Forest Service acquiring 26,050 acres of Pacific coastline with a high recreation potential. Plans are already under way to develop these lands for recreation under the Operation Outdoors program.

A Boundary Adjustment Program of service-wide scope was approved and 10-year accomplishment plans set up for each Forest. Special financing made it possible to make a good start on related land exchanges and boundary surveys. The objective of this program is to simplify management through exchange of lands. Detached or isolated parcels of national forest land are to be traded for private lands inside the Forests. In this program there are obvious management benefits to the public as well as to interested private parties.

Rights-of-way involving a total of about 150 parcels for forest development roads were acquired during the year. Public road access across private lands needed for development and use of public lands has been and continues to be a problem. At the present rate of acquisition our accomplishment adds up to 10 or 15 percent of the job that needs to be done.

MINERAL RESOURCE

The Multiple Use Mining Law (P. L. #167) is now in its second year. This 10-year surface rights determination program has been completed on 690,000 acres on California Forests. Field examination projects are continuing on 8 national forests on an additional 510,000 acres. The mining fraternity has been unusually cooperative in this important program of unlocking surface resources; so far it has not been necessary to go to a hearing on specific mining claims.

WILDLIFE RESOURCE

Hunting and fishing is the primary attraction for at least one out of every four recreation visitors to the national forests. Hunter use has doubled in the past ten years while fishermen have tripled during the same period.

Increased numbers of sportsmen bring increased pressures on rather static populations of fish and game. A disturbing trend is the increased number of "nimrods" who display no evidence of having had parental guidance in woodsmanship or ethics of the hunt. The threat of fire increases, sanitation problems are accentuated, scenery is littered, and lives and property are too frequently threatened. The Hunter Safety program sponsored by the Division of Fish and Game is one step in meeting this sociological puzzler.

Maintaining and improving the land and waters productive of fish and game by the Forest Service, and effective management of the game by the Division of Fish and Game is a partnership job. Joint accomplishments for 1957 give assurance of continued opportunities for the sportsman to enjoy his favorite sport on the public hunting and fishing areas of the national forests.

During the past few years the Forest Service has developed guidelines for logging without damaging fishing streams. Clear waters now flow below logging operations on national forest land. A canopy is left over streams to hold down water temperatures. Riparian vegetation is left in place and a strip of streamside forest is the rule. These timber sale areas have served as demonstration areas for fisheries men, biologists, sportsmen and others concerned with management of public lands.

The construction of small flow maintenance dams in the Sierra has continued. The projects now number about 50. They have stored over 10,000 acre feet of water which insures summer flows in about 400 miles of streams. These can now be properly called fishing streams. This program of creating stable live streams is nearing the end of development for want of suitable sites. Federal tax on arms, ammunition and fishing equipment have made this program possible. It is an important step in the annals of fishery management and best of all the projects individually have created natural hatchery and rearing streams, with Mother Nature picking up the check for the otherwise expensive production costs.

FORAGE RESOURCE

1957 was a good forage year, especially for the coastal ranges and the annual grass ranges of the interior mountains and foothills. The volume of feed produced was far above average. Ironically, the conditions that produce a heavy volume growth of annual grasses compounds the problems of fire control. A greater volume of dry flash fuels increases the chance of fire starts and resistance to control.

Grass, herbs, and browse plants on National Forest ranges provide food for domestic livestock and wildlife. Controlled use of the forage resource is necessary to keep animal use and food supplies in balance. To maintain healthy plant cover which will hold soils in place and produce maximum feed year after year grazing use must be limited to removal of about half of the current year's growth. Heavier grazing use jeopardizes, soil stability, forage production, and the nutritional level of dependent grazing animals.

Domestic livestock use of national forest ranges in the State are now closely in balance with forage supplies. About 124,000 head of cattle and 120,000 head of sheep were grazed under permit during the current year. A number of problem areas exist in the State where excessive numbers of deer are causing a steady decline of forage plants on critical ranges. Correction of these "sore spots" can only be brought about by reduction in the numbers of game animals.

The value of the forage crop to the 1300 stockmen holding permits this year amounted to about $5,000,000. This estimate is based on pounds of meat produced from the forage consumed.

Systematic measurement and recording of range conditions is continuing, using a series of permanent plot samples. Periodic remeasurements will provide documented written and visual evidence of changing range condition. This project, extending over a period of years, is now about 25 percent complete for the initial work planned.

Range reseeding and conversion work is being intensified in an effort recapture or improve range areas. 35 such projects, covering an area of 9,000 acres were treated this year. Purchase of special rangeland drills, sprayers, and plows will speed up progress in betterment of ranges.

Slow, but steady progress is being made in construction and maintenance of fences, water developments, and other improvements to permit better management and control of livestock use.

ADMINISTRATIVE AND FISCAL MANAGEMENT

Business Management

Forest Reserve Fund receipts for the fiscal year ending June 30, 1957 were:

Timber Sales	$ 15,074,151
Grazing	200,029
Power	38,445
Land Uses	459,984
Total	$ 15,772,609

Receipts this year were $5,274,552 less than the previous year. This difference is largely due to the slump in the lumber market which affected volumes cut and stumpage prices.

Counties received $3,992,719.66 as their share of National Forest receipts for expenditure on schools and roads.

To compete in complex business activities the Forest Service in R-5 has turned to modern business methods of accounting and record keeping. An I.B.M. installation completed in December 1957 in San Francisco will enable us to step up efficiency and economy in payment, accounting, and statistical record keeping.

Personnel Management

The "forest family" of workers for the Region is built around a core of about 1600 permanent Forest Service employees. 313 of these are professional foresters, 70 are professional engineers. Skilled craftsmen, business managers, and clerical staffs, make up the balance.

During peak seasonal employment, in mid-summer, the work force is tripled by the addition of protection and improvement workers. Fire emergencies often require the temporary addition of 500 or more emergency firefighters.

Recruitment of qualified personnel is growing increasingly difficult. Pay scales, housing deficiencies, and the universal desire for stability of employment places us in an unfavorable competitive position. Professional foresters and engineers, trained in physical and natural sciences are in short supply. Unfilled vacancies remained at the end of the year for want of qualified applicants. 57 new professionals were recruited this year after a canvass of graduates of all schools in the nation. To meet future needs, a student-trainee program is now offered whereby students are assured of employment and field training experience to round-out their academic work.

Training and supervision of employees this year stressed safe working habits. This paid off in a significant decrease in lost time accidents and fatalities. Motor vehicle accidents were less than 1956, firefighting injuries were less than average, and firefighting deaths were averted.

Cash incentive awards, meritorious awards for superior service, and management improvement were made to 50 employees this year, totalling $2,500. This program has resulted in economies, and increased efficiency in management which keeps the Forest Service moving in the direction of doing more with what we have. National recognition was given to three employees for heroic service and leadership in the saving of 64 fellow firefighters in 1955.

Physical Plant

Increasing demands for forest resources and uses require a corresponding increase in facilities to satisfy expanding administrative and public service needs.

Following are improvements made to the transportation system on the National Forests during the fiscal year ending June 30, 1957:

35 worn out bridges were replaced with new permanent type bridges or large culverts.

50 miles of timber access roads were constructed or reconstructed by the Forest Service. 410 miles of timber access roads were constructed by timber purchasers. All of these are permanent system roads.

21 miles of recreation and fire roads were constructed or rebuilt.

Repair of roads, bridges, and trails damaged by the floods of 1955-56 was completed this year at a cost of about $1,318,000.

The Angeles National Forest completed construction of 6 miles of two-lane, asphalt surfaced roads for access to "NIKE" sites on the Forest. This construction was performed by the Forest Service for the Army.

Employee housing and related building needs presents a serious problem particularly at isolated stations where private rental housing is not available. Tents, house trailers, and renovated CCC camp buildings are being used until housing of a reasonable standard for normal living can be provided.

10 dwellings were constructed during Fiscal Year 1957 toward meeting the actual current needs of more than 200 dwellings. Buildings programmed for construction for the year beginning July 1, 1957 provides doubling the construction program. However, even at this level of financing it will take 15 years to build the accommodations needed now. Expanding forest business and use will inevitably aggravate the unfavorable situation that now exists.

Cooperative Work

Of the many cooperative programs of federal assistance to promote better management of all forest, range, and watershed lands in the State, the most important is protection against wildfire. The Forest Service works with the State of California in providing fire protection on 19.8 million acres of non-federal lands. 1957 marked the 38th anniversary of this cooperative forest and watershed protection program in California.

In addition to fire protection, cooperative work in control of forest insects, disease, and emergency flood control on 100,000 acres of State and private lands was carried on during the year.

Cooperative federal assistance also extends to aiding the State in maintaining eight Service Foresters who gave technical help to 734 private land owners in management of 123,838 acres during the year.

Another facet of cooperative work with the State involves four State forest nurseries which produced 1,229,000 trees in 1957. These trees are sold to private land owners for reforestation, windbreaks, and erosion control. Planting stock is sold at rates slightly above production costs.

Other cooperative work programs and projects are carried on with and for many Federal, State, and private agencies. Such cooperation ranges from joint planning and exchanges of information, to actually contracting to do work on a cost sharing or reimbursement basis. Reciprocal agreements, in turn, provide for outside agencies doing work for the Forest Service.

One of the more important projects started this year which illustrates cooperative work with many agencies is the water and power development program of the Sacramento Municipal Utility District (SMUD). This program provides for power developments on the American River within the Eldorado National Forest.

Public power development is the primary consideration, but an integrated cooperative plan provides for all other compatible uses under the multiple-use concept of national forest management. Recreation potentials are to be developed around reservoir areas at Ice House and Union Valley. Provision has been made for sufficient water releases from reservoirs to maintain adequate stream flows for fish life.

Development of this comprehensive program involves the cooperative efforts of the Forest Service, City of Sacramento, Federal Power Commission, Counties, private land owners, and at least six Divisions of State Government having interests and responsibilities to the public in management of the lands and resources involved in this project.

Fire

The fire record for the national forests in 1957 shows a total of 1094 fires. 471 of these were caused by lightning. This is less than half the average number of lightning fires for the past 5 years. The remaining 623 man-caused fires is a decrease of 33 fires compared with the 5 year average.

89,843 acres burned represents a small but encouraging decrease, compared with a 92,000 acre average for the past five years. Fire damage is estimated at $28,000,000 with the critical watersheds of Southern California being the hardest hit.

Air attack in support of ground forces was greatly accelerated and improved this year. Air tankers proved 80 percent effective in holding assigned areas on the fires attacked.

24 contract air tankers and two Forest Service TBM tankers were used on a total of 71 fires. A total of 595,000 gallons of water and borate slurry retardent was dropped by air tankers.

Air Tanker - Converted torpedo bomber dropping 400 gallons of water.

A smokejumper base with 26 jumpers was established at Redding this year. Jumpers were used on 26 fires involving a total of 147 jumps.

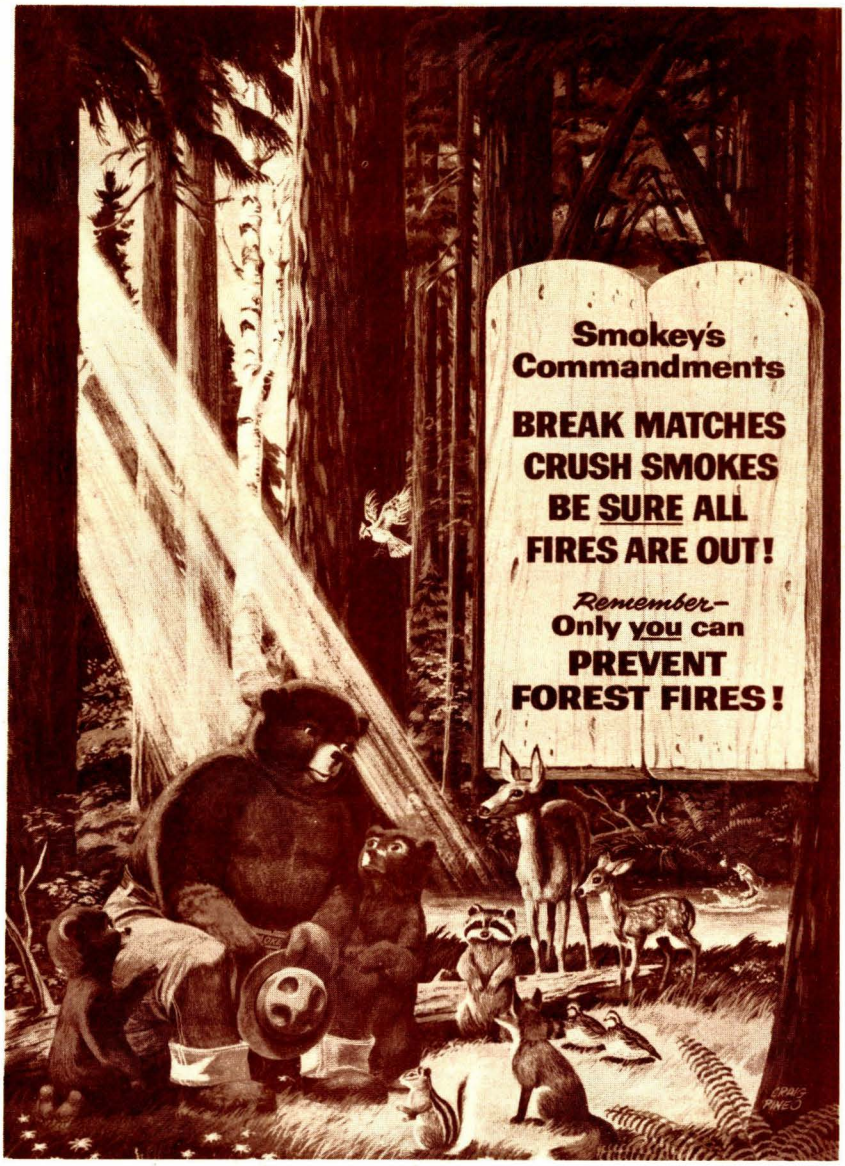
Helicopters were used to an increasing extent totalling 1, 794 hours of flying time. Operational techniques and equipment are being developed to fully utilize the potentials of this versatile fire tool. This year marked the first use of an organized suppression crew of "smoke-hoppers". The helicopter provides a fast means of getting these specially trained and equipped firemen to a remote blaze while it is small. When landing spots are absent the "smoke-hopper" fireman jumps to the ground while the helicopter hovers above a selected spot near the fire. Special training was given to selected potential "smoke-hopper" firemen on a number of Forests this year in anticipation of a more widespread use of this air attack procedure.

Fixed wing aircraft and helicopters were used to transport nearly 7, 000 fire personnel this season. More than 28 tons of para-cargo was dropped on 10 fires. More than 76 percent of all aircraft use in the Region this year was contract or rental service from private operators.

Air phases of fire control tend to capture the public spotlight. However, they are only strategic ground support tools. Bulldozers, fire trucks, hand tools and men are the deciding factors in ultimate control of a fire.

As land values increase, and complexity of fire control methods increase, the skill and experience required in carrying out this phase of forest service work calls for specialists. Fire fighting is a fast growing science and will continue to grow in the years ahead. Forest fire research, equipment development and personnel training are receiving increased attention in development of fire control science.

Mobilized air and ground forces at a command post, for integrated attack on a forest fire.


Smokey's
Commandments
BREAK MATCHES
CRUSH SMOKES
BE SURE ALL
FIRES ARE OUT!
Remember–
Only you can
PREVENT
FOREST FIRES!